

Message Text

PAGE 01 STATE 003594

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TO ALL DIPLOMATIC AND CONSULAR POSTS IMMEDIATE

C O N F I D E N T I A L STATE 003594

EXDIS INFORM CONSULS

E.O. 11652: GDS

TAGS: TSPA, PFOR, XX

SUBJECT: RETURN TO EARTH OF SKYLAB S-II BOOSTER

REF: STATE A-6343, JULY 25, 1973

1. FOLLOWING INFORMATION MADE AVAILABLE TO POSTS ON CONTINGENCY BASIS. DISSEMINATE ONLY UPON SPECIFIC AUTHORIZATION OF DEPARTMENT. INFORMATION CONTAINED IN SUGGESTED QUESTIONS AND ANSWERS, SIMILARLY EMBARGOED, IS FOR POSSIBLE EVENTUAL USE IN SPECIFICALLY AUTHORIZED BRIEFING OF HOST GOVERNMENTS. BEFORE RECEIPT OF AUTHORIZATION REFER ALL QUERIES TO DEPARTMENT. SINCE RISK POSED BY RETURNING SPACE OBJECT IS EXCEEDINGLY SMALL AND UNMITIGABLE, EVENT SHOULD BE TREATED IN LOW-KEY, UNDRAMATIC MANNER TO AVOID STIMULATING UNWARRANTED ALARM.

2. ANY FRAGMENTS THAT SURVIVE RE-ENTRY MAY BE DISPERSED
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PAGE 02 STATE 003594

SOME 2500 MILES ALONG AND ABOUT 50 MILES ON EITHER SIDE OF THE SPECIFIC ORBIT TRACK ON WHICH RE-ENTRY OCCURS. ORBIT TRACKS RANGE FROM 50 DEGREES NORTH LATITUDE TO 50 DEGREES SOUTH LATITUDE, WORLDWIDE, BUT IT IS IMPOSSIBLE TO KNOW IN

ADVANCE WHICH SPECIFIC TRACK WILL END IN RE-ENTRY.

3. PRESENT BEST ESTIMATE OF RE-ENTRY IS 10 JANUARY BUT VARIES FROM DAY TO DAY DUE TO UNCERTAINTIES IN THE ATMOSPHERE AND THE ATTITUDE OF THE BOOSTER. THE ACCURACY

OF THE DATE-OF-RE-ENTRY PREDICTION AS WELL AS THE PROBABLE RE-ENTRY POSITION ALONG ORBITAL PATH WILL IMPROVE AS OCCURENCE NEARS.

4. USG AS LAUNCHING STATE IS SUBJECT TO STANDARD OF ABSOLUTE LIABILITY IN COMPENSATING FOR ANY DAMAGE TO PERSONS OR PROPERTY WHICH MIGHT BE CAUSED BY ITS SPACE OBJECTS BY PROVISION OF THE CONVENTION ON INTERNATIONAL LIABILITY FOR DAMAGE CAUSED BY SPACE OBJECTS (ARTICLE 2). CLAIMS FOR DAMAGE MAY BE PRESENTED AS PROVIDED BY THE CONVENTION.

5. FURTHER, THE AGREEMENT ON THE RESCUE OF ASTRONAUTS, THE RETURN OF ASTRONAUTS AND THE RETURN OF OBJECTS LAUNCHED INTO OUTER SPACE PROVIDES THAT HOST SIGNATORY NATIONS DISCOVERING A SPACE OBJECT OR ITS COMPONENT PARTS SHALL NOTIFY THE LAUNCHING AUTHORITY AND THE SECRETARY-GENERAL OF THE UNITED NATIONS. IN GENERAL, THE SPACE OBJECT OR ITS COMPONENT PARTS SHALL BE RETURNED TO THE USG IF REQUESTED AND, IF SO, AT ITS EXPENSE (ARTICLE 5). NASA DOES NOT WISH TO DEMAND RETURN OF FRAGMENTS UNLESS A CLAIM FOR DAMAGE IS MADE, IN WHICH CASE THE FRAGMENT INVOLVED MUST BE REQUESTED. GUIDANCE ON PARTICULAR CASES INVOLVING QUESTIONS OF RETURN OF FRAGMENTS WILL BE PROVIDED UPON REQUEST. IN GENERAL, SEE PROCEDURES IN REPAIR.

6. USG HAS ALSO ACCEPTED LIABILITY FOR DAMAGE CAUSED BY SPACE OBJECTS UNDER EARLIER TREATY ON PRINCIPLES GOVERNING THE ACTIVITIES OF STATES IN THE EXPLORATION AND USE OF OUTER SPACE, INCLUDING THE MOON AND OTHER CELESTIAL BODIES (ARTICLE 7).

CONFIDENTIAL

PAGE 03 STATE 003594

7. OUT OF SEVERAL THOUSAND OBJECTS WHICH HAVE DECAYED FROM ORBIT, ONLY A FEW DOZEN ARE KNOWN TO HAVE SURVIVED RE-ENTRY TO LAND ON THE EARTH'S SURFACE. NONE HAS CAUSED INJURY. THE POTENTIAL HAZARD IN THIS CASE IS ESTIMATED TO BE ABOUT THE SAME ORDER AS FOR THE EARLIER GEMINI AND APOLLO PROGRAMS. LANDING IN WATER OR IN REMOTE AREAS IS MOST PROBABLE. CHANCE OF INJURY IS STATISTICALLY SLIGHT WHEN COMPARED WITH DAY-TO-DAY HAZARDS ROUTINELY ACCEPTED AS PART OF LIVING IN THE TWENTIETH CENTURY.

8. SINCE THE AREA OVER WHICH RE-ENTRY TAKES PLACE IS LARGE, IT IS HIGHLY PROBABLE THAT DEBRIS WILL BE VISIBLE AS IT DISINTEGRATES (BURNING IN THE HEAT OF RE-ENTRY).

----- SUGGESTED RESPONSE TO QUESTIONS -----

1. WHEN WILL THE EVENT OCCUR?

ANSWER: THE S-II BOOSTER WILL ENTER THE ATMOSPHERE ABOUT JANUARY 10 BUT DUE TO ATMOSPHERIC UNCERTAINTIES THE PRECISE DATE CAN VARY.

2. WHERE WILL IT OCCUR?

ANSWER: ATMOSPHERIC RE-ENTRY COULD BE ANYWHERE ABOVE THE EARTH BETWEEN 50 DEGREES NORTH AND 50 DEGREES SOUTH LATITUDES.

3. WHAT WILL BE THE SIZE OF THE AREA IN WHICH THE FRAGMENTS WILL BE CONTAINED?

ANSWER: ABOUT 100 MI X 2500 MI, IF ANY DO SURVIVE.

4. WHY IS THE BOOSTER DE-ORBITING?

ANSWER: GRADUAL LOSS OF ENERGY DUE TO AERODYNAMIC DRAG ENABLES THE BOOSTER TO BE RECAPTURED BY THE EARTH'S GRAVITATIONAL FIELD.

5. WHAT IS THE WEIGHT OF THE S-II IN ORBIT?

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PAGE 04 STATE 003594

ANSWER: 83,500 POUNDS, OF WHICH, ABOUT 36,000 POUNDS MAY SURVIVE RE-ENTRY.

6. WHAT WILL HAPPEN TO THE LARGE PIECES AS THEY DE-ORBIT AND ENTER EARTH'S ATMOSPHERE?

ANSWER: THEY WILL BURN, MELT AND BREAK UP INTO FRAGMENTS. SOME WILL DISAPPEAR AS SMOKE OR ASH.

7. HOW MANY SURVIVING PIECES OF THE BOOSTER WILL RETURN TO EARTH?

ANSWER: IT IS UNCERTAIN HOW THE STAGE WILL BREAK UP AND WHAT THE THERMAL EFFECTS WILL BE ALTHOUGH SOME ESTIMATES REACH AS HIGH AS 50.

8. HOW BIG WILL THEY BE?

ANSWER: UNKNOWN. HOWEVER, THE COMMON BULKHEAD (6000 POUNDS) THE FIVE ROCKET ENGINES (EACH WEIGHING ABOUT 3000 POUNDS) HAVE THE HIGHEST PROBABILITY OF CONTRIBUTING DEBRIS WHICH MAY SURVIVE.

9. WHAT IS THE DANGER FROM THE FRAGMENTS?

ANSWER: OUT OF A TOTAL OF SEVERAL THOUSAND OBJECTS (PAYLOADS AND DEBRIS) LISTED AS HAVING DECAYED FROM ORBIT, ONLY A FEW DOZEN HAVE PRODUCED FRAGMENTS THAT HAVE SURVIVED RE-ENTRY AND IMPACTED ON LAND. THERE HAS NEVER BEEN AN INJURY TO LIFE.

10. WHAT IS THE HAZARD ESTIMATE?

ANSWER: ON THE SAME ORDER AS FROM METEORITES, WHICH SURVIVE AT A RATE OF 55,000 TO 300,000 POUNDS PER YEAR BUT ARE BELIEVED TO HAVE CAUSED AN INJURY LESS THAN ONE IN A GENERATION.

11. HOW IS THE USG OBTAINING THE INFORMATION CONCERNING THE TIME AND PLACE OF THE DE-ORBIT?

CONFIDENTIAL

PAGE 05 STATE 003594

ANSWER: THE STAGE IS BEING TRACKED BY RADAR AND ITS MOST PROBABLE ENTRY POINT IS COMPUTED FROM THIS INFORMATION.

12. WHY CAN'T THE INFORMATION BE MORE PRECISE SO THAT PRECAUTIONS CAN TAKE PLACE?

ANSWER: THE ATTITUDE OF THE VEHICLE WHEN IT FINALLY ENTERS THE ATMOSPHERE AS WELL AS THE VARIATIONS OF THE UPPER ATMOSPHERE, HAVE A VERY LARGE EFFECT ON ITS ENTRY POINT AND BREAK UP MECHANISMS.

13. WHAT WAS THE SIZE OF THE LARGEST SPACE FRAGMENT TO DE-ORBIT TO DATE?

ANSWER: THE LARGEST OBJECT KNOWN TO NASA TO DE-ORBIT TO DATE WAS THE S IV B STAGE OF THE SATURN LAUNCH VEHICLE WHICH WEIGHED 31,700 POUNDS. THE LARGEST KNOWN FRAGMENT

KNOWN TO NASA TO IMPACT ON LAND WAS FROM A SOVIET SATELLITE (COSMOS 316); THE LARGEST OF SIX FRAGMENTS LANDING IN THE KANSAS, TEXAS, OKLAHOMA AREA; IT LANDED IN 1970 AND WEIGHED 640 POUNDS.

14. WHAT IS THE MAGNITUDE OF THE EXPECTED DEBRIS REACHING THE EARTH?

ANSWER: THE TOTAL SKYLAB DEBRIS REACHING EARTH IS EXPECTED TO BE ABOUT THE SAME ORDER AS THAT FOR THE GEMINIA AND APOLLO PROGRAMS. THE OTHER MAJOR SKYLAB HARDWARE IN ORBIT IS THE ORBITAL WORKSHOP AND THIS IS PREDICTED TO RE-ENTER AS EARLY AS 1978 AND THE FOUR PAYLOAD SHROUD PANELS EACH

WEIGH ABOUT 5,900 POUNDS IN ORBIT.

15. WHAT ARE THE US OBLIGATIONS FOR LIABILITIES INCURRED FROM US SPACE OBJECTS WHICH RE-ENTER THE ATMOSPHERE AND IMPACT ON THE EARTH?

ANSWER: THE USG AS A SIGNATORY OF THE SPACE LIABILITY CONVENTION IS ABSOLUTELY LIABLE TO PAY COMPENSATION FOR DAMAGE CAUSED BY ITS SPACE OBJECTS ON THE SURFACE OF THE EARTH OR TO AIRCRAFT IN FLIGHT.
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PAGE 06 STATE 003594

16. IS THE USG NOTIFYING OTHER GOVERNMENTS OF THE FORTHCOMING DE-ORBIT OF THE SKYLAB BOOSTER?

ANSWER: NO

17. HAS NASA FILED AN ENVIRONMENTAL IMPACT STATEMENT FOR SKYLAB?

ANSWER: YES, AS STATED ON THE MARCH 5, 1972, ENVIRONMENTAL STATEMENT UNDER ORBITAL DEBRIS, QUOTE THE SKYLAB WORKSHOP CLUSTER AND ELEMENTS ASSOCIATED WITH SKYLAB LAUNCHES REMAIN IN ORBIT FOR VARYING PERIODS OF TIME. EACH ELEMENT WILL EVENTUALLY DECAY AND UNDERGO DISINTEGRATION AND RE-ENTRY. THE EXTENT OF THIS HAZARD HAS BEEN CONSIDERED AND IS SMALL BASED ON WORLD-WIDE EXPERIENCE TO DATE. UNQUOTE.

18. HAVE THE SOVIETS EVER NOTIFIED THE USG OF DE-ORBITING SPACE OBJECTS?

ANSWER: SEE ANSWER TO 13 ABOVE. THE SOVIET UNION DID NOT ANNOUNCE THE DE-ORBITING NOR DID IT CLAIM THE FRAGMENTS. OUR OWN TRACKING DATA, TOGETHER WITH AN ANALYSIS OF THE FRAGMENTS, ENABLED US TO MAKE THE IDENTIFICATION.

19. HAVE ANY SPACE OBJECTS IMPACTED ON THE EARTH BEFORE? ON THE US?

ANSWER: THE IMPACTS OF SEVERAL DOZEN SPACE OBJECTS HAVE IN WISCONSIN, ALASKA, NORTH DAKOTA AND THE PIECES MENTIONED ABOVE IN 13.

20. HAVE THERE EVER BEEN ANY CASUALTIES CAUSED BY SPACE OBJECTS?

ANSWER: NONE IS RECORDED, NOR ANY HUMAN INJURY.

21. WHAT SHOULD ONE DO IF HE SIGHTS OR FINDS A SUSPECTED SPACE OBJECT?

CONFIDENTIAL

PAGE 07 STATE 003594

ANSWER: SIGNATORY NATIONS TO THE AGREEMENT OF THE RESCUE OF ASTRONAUTS, THE RETURN OF ASTRONAUTS AND THE RETURN OF OBJECTS LAUNCHED INTO OUTER SPACE (INCLUDING THE U.S.) MUST NOTIFY THE SECRETARY GENERAL OF THE UNITED NATIONS AND THE LAUNCH COUNTRY IF THEY DISCOVER A SPACE OBJECT IN THEIR TERRITORY.

22. ARE THERE ANY INTERNATIONAL AGREEMENTS FOR THE RETURN OF RECOVERED SPACE OBJECTS TO THE GOVERNMENT OF ORIGIN?

ANSWER: YES, AS NOTED ABOVE IN 22.

2.. HAVE ANY RECOVERED SPACE OBJECTS EVER BEEN RETURNED UNDER SUCH AN AGREEMENT?

ANSWER: NO.

24. ARE THERE ANY LEGAL REQUIREMENTS TO DESIGN SPACE VEHICLES WITH MECHANISMS FOR CONTROLLING RE-ENTRY?

ANSWER: NO.

25 WHY CAN'T SOME ACTION, SUCH AS SHOOTING DOWN THE OBJECTS, BE TAKEN?

ANSWER: BECAUSE OF THE SPEED OF RE-ENTRY AND UNCERTAINTIES OF TRAJECTORY NO ACTION CAN BE TAKEN.

26. WHAT IS THE PROBABILITY PREDICTION FOR CASUALTIES FROM THE SKYLAB BOOSTER?

ANSWER: SO SMALL AS TO BE STATISTICALLY IRRELEVANT. IT IS COMPARABLE TO THAT OF THE GEMINI AND APOLLO PROGRAMS COMBINED, WHICH CAUSED NO INJURIES OR INCIDENTS.

27. HOW DOES THIS COMPARE WITH PREVIOUS SPACE OBJECT DE-ORBITS?

ANSWER: THE HAZARD FROM ALL SKYLAB DEBRIS IS PROBABLY LESS THAN THAT FROM THE GEMINI AND APOLLO PROGRAMS
CONFIDENTIAL

PAGE 08 STATE 003594

COMBINED, WHICH CAUSED NO INJURIES OR INCIDENTS.

28DON'T SHIPS AT SEA REQUIRE EARLIER INFORMATION TO DIVERT, DUE TO THEIR RELATIVE SLOW SPEED?

ANSWER: WE CANNOT GIVE PRECISE ENOUGH INFORMATION ON WHERE ENTRY WILL BE TO ENABLE SHIPS, AIRCRAFT, OR PERSONNEL ON THE GROUND TO TAKE ACTION.

29. WHAT WOULD THE USG DIRECT IN THE EVENT THAT THE FINAL IMPACT PREDICTIONS INDICATE A POPULATED AREA IN THE U.S. WILL BE HIT?

ANSWER: (SEE 29).

30. HAS THE USG NOTIFIED THE UN?

ANSWER: THE UNITED STATES, LIKE MANY OTHER COUNTRIES HAS FOR MANY YEARS ROUTINELY INFORMED THE UN SECRETARY-GENERAL OF THE LAUNCHING OF NEW OBJECTS INTO OUTER SPACE AND THE DEPARTURE OF OLD OBJECTS FROM ORBIT. THIS NOTIFICATION PROVIDED ON A REGULAR BASIS SO THAT A CENTRAL REGISTRY OF SPACE OBJECTS CAN BE MAINTAINED, CONCERNS EVENTS THAT HAVE ALREADY TAKEN PLACE RATHER THAN THOSE ANTICIPATED TO OCCUR. UNCERTAINTIES CONNECTED WITH PREDICTIONS EITHER OF LAUNCHINGS OR OF DE-ORBITS POSE TECHNICAL PROBLEMS THAT WOULD MAKE ADVANCE NOTIFICATION TECHNICALLY DIFFICULT AND UNRELIABLE. THE DE-ORBIT OF THE SKYLAB BOOSTER WILL BE REPORTED IN THE NORMAL MANNER. KISSINGER

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